New Developments in Hepatic Lipoprotein Production and Clinical Relevance

Zemin Yao

In this issue of Arteriosclerosis, Thrombosis, and Vascular Biology, 5 review articles are published with the common theme of Hepatic Lipoprotein Production and Clinical Relevance, which highlight the recent novel understandings in the field. Liver is the major organ in the assembly and secretion of very low-density lipoprotein (VLDL) and high-density lipoprotein (HDL), both of which exert a major impact on cholesterol and triglyceride homeostasis not only at the liver but also at the whole body levels. Abnormalities in hepatic VLDL and HDL production are invariably associated with metabolic defects, notably dyslipidemia under diabetic conditions such as hypertriglyceridemia and hyperalphalipoproteinemia. What remain to be unraveled are the cellular and molecular mechanisms by which various protein (apolipoprotein [apo]) and lipid constituents are assembled into respective lipoproteins. New experimental evidences delineating the intracellular events during the complex lipoprotein assembly/secretion are summarized in the present review articles.

Sundaram and Yao1 compiled the recent data suggesting an intracellular role of exchangeable apolipoproteins, such as apoE, apoA-IV, and apoC-III, in the process of assembly and secretion of triglyceride-rich VLDL.1 New understandings on cellular mechanisms responsible for lipoprotein cargo selection and trafficking through the endoplasmic reticulum and Golgi apparatus are introduced by Tiwari and Siddiqi.2 Lehner and colleagues3 explore new insights and challenges associated with studies of synthesis and mobilization of lipid precursors that are required during VLDL assembly/secretion. New discoveries on emerging protein factors that regulate various aspects of lipid metabolism and lipoprotein production are summarized by Li and coworkers.4 Ye5 surveys the current understanding on the interrelationship between hepatitis C virus infection and intracellular assembly and trafficking of VLDL.

The decision of the Editorial Board of Arteriosclerosis, Thrombosis, and Vascular Biology on publishing these reviews is based on the need to encourage intensive investigations into cellular and molecular mechanisms underlying hepatic lipoprotein production. It is hoped that ideas and opinions presented in these reviews may stimulate the development of in-depth research to further our understanding on hepatic lipoprotein production in the context of metabolic abnormalities.

Disclosures

None.

References

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